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# American Potato Journal

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AUGUST, 1947

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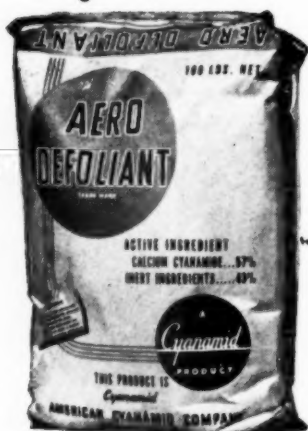
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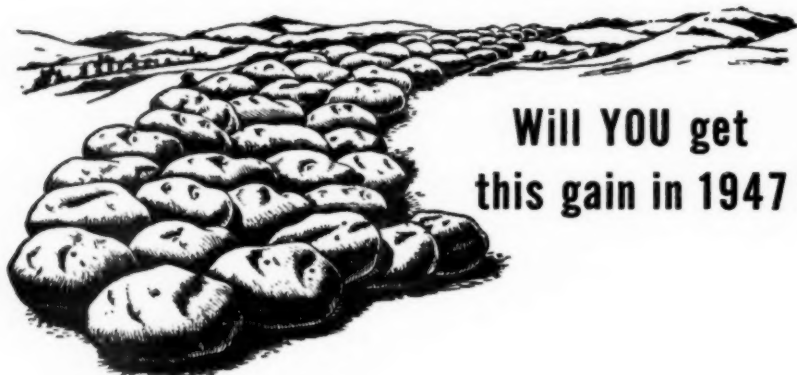
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# American Potato Journal

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## NEW VARIETIES OF POTATOES

F. J. STEVENSON

### A Committee Report to the Potato Association of America

There have been a number of requests from members of the Potato Association of America for a report on the present status of the new potato varieties. In response to these requests, Mr. E. B. Tussing, President of the Association, appointed a committee<sup>1</sup> to assemble data concerning these varieties. Each member of the committee was appointed to represent a geographic section of the United States and one to represent Canada. All except two members of this committee have sent in reports, and an attempt has been made to summarize the findings.

Since 1932 at least 34 new varieties have been distributed to growers in the United States. Some of these have increased very rapidly, others have increased more slowly, a few have fallen by the wayside, and others are so new that they have not yet appeared on the certified seed-potato lists. The new varieties released to growers since

---

<sup>1</sup>The members of the committee and the sections of the United States and Canada they were to report are:

W. C. Libby, University of Maine, Orono, Maine — New England States  
J. C. Campbell, N. J. Agr. Exp. Sta., New Brunswick, N. J. — Middle Atlantic States.

J. P. Slesman, Ohio Agr. Exp. Sta., Wooster, Ohio — East Central States  
E. L. LeClerg, University of Louisiana, Baton Rouge, La. — Southern States  
F. A. Krantz, University of Minnesota, University Farm, St. Paul, Minn.— North Central States.

W. A. Riedl, University of Wyo., Laramie, Wyo. — Mountain States.

Glen N. Davis, Cal. Agr. Exp. Sta., Davis, Cal. — Pacific States.

L. C. Young, Experiment Station, Fredericton, N. B., Canada — Canada.

F. J. Stevenson, Chairman, U. S. Dept. of Agr., Plant Industry Station, Beltsville, Md.

TABLE 1.—New varieties of potatoes released in the United States since 1932.

Variety	Cooperating State	Original Number	Year Released	Maturity	Tuber Shape <sup>1</sup>	Depth of Eye <sup>2</sup>	Skin Color <sup>3</sup>	Flesh Color <sup>4</sup>	Disease Reaction <sup>5</sup>							Scab	Ring Rot	Brown Rot	Specific Gravity <sup>6</sup>	Certified Seed in United States in 1946	States with Certified Seed
									Mild Mosaic	Leafroll	Net Necrosis	Yellow Dwarf	Vines	Late Blight	Tubers						
Ashworth <sup>7</sup>	N. Y.	N. Y. ECU-1	1946	L	cl-ob	sh	W	Y	—	—	—	—	—	—	—	—	—	—	....	Bushels	Cal.
Calrose	Cal.	USDA 672-26	1946	L	cl	sh	Rus	W	S	—	—	—	—	—	—	HI	—	—	1.078	340,000	
Cayuga	N. Y.	USDA 627-126	1946	L	cl	sh	—	—	—	—	—	—	—	—	—	—	—	—	1.096		
Chenango <sup>7</sup>	N. Y.	N. Y. CUI-2	1946	M	—	—	—	W	—	—	—	—	—	—	—	VS	—	—	1.067		
Chippewa	Maine	USDA 42672	1933	M	cl-ob	sh	W	W	FI	VS	I	S	S	—	S	—	—	—	1.080	1,790,378	11 States
DeSoto	La.	La. TK-3-39-14	1944	M	cl-r	m	W	W	R	S	R <sup>s</sup>	—	S	—	S	—	—	—	1.076	6,670	S. Dak.
Earlaine	Maine	USDA 45075	1937	E	r	msh	W	W	FI	S	R <sup>s</sup>	—	S	—	S	—	—	—	1.079		
Earlaine No. 2	Maine	.....	1938	L	r	msh	W	W	—	S	—	—	S	—	S	—	—	—	1.075		
Empire <sup>7</sup>	N. Y.	N. Y. CRH-7	1945	L	ob	sh	W	W	—	S	—	—	S	—	S	—	—	—	1.072	700	N. Y.
Erie	Ohio	USDA 47101	1942	L	r	msh	W	W	S	—	—	—	—	—	—	—	—	—	1.087	32,450	Mich., N. Y., Ohio, Wis.
Essex	N. Y.	N. Y. DAB-3	1946	E	—	—	W	Y	—	—	—	—	—	—	—	—	—	—	....		
Golden	Maine	USDA 44428	1933	L	r	msh	W	W	—	—	—	—	—	—	—	—	—	—	....		
Houma	La.	USDA 44639	1936	L	r	msh	W	W	FI	Mk	HR	—	VS	—	S	—	—	—	1.088	68,763	Me., N.H., N.Y., Pa., Vt.
Kasota	Neb. & Minn.	Minn. 133-1-34	1943	L	br	sh	R	W	—	S	—	—	S	—	S	—	—	—	1.085	16,033	Mont., Nebr., Wyo.
Katahdin	Maine	USDA 42667	1932	L	cl-r	sh	W	W	FI	Mk	I	—	S	—	S	—	—	—	1.093	8,303,035	17 States
LaSalle	La.	La. Ch x T (3-1)	1946	L	cl-r	msh	W	Y	—	—	—	—	—	—	—	HR	—	—	1.087	5,400	S. Dak.
Marygold	Md.	USDA 47148	1944	M	cl-r	m	W	W	R	S	—	—	—	—	—	—	—	—	1.088		
Menominee	Mich.	USDA 528-118	1944	L	r	msh	W	W	MR <sup>7</sup>	S	—	—	MR	MP	—	—	—	—	1.077	57,353	5 States
Mesaba	Iowa & Minn.	Minn. 35-26	1938	E	r	sh	W	W	—	—	S	—	S	—	S	—	—	—	1.089		
Mohawk	N. Y.	USDA 46000	1943	L	ob	sh	W	W	FI	S	—	—	S	—	S	—	—	—	1.103	29,697	Maine, Minn., N. Y.
Norkota	N. Dak.	USDA 46019	....	L	cl-ob	sh	W	W	—	—	—	—	—	—	—	—	—	—	....		
Ontario	N. Y.	USDA 528-242	1946	L	ob	sh	W	W	—	—	—	—	—	—	—	HR	—	—	1.088	13,300	N. Y.
Pawnee	Colo.	Colo. 1608	1942	M	cl-r	sh	W	W	—	—	—	—	—	—	—	VS	—	—	1.088	1,183	
Placid <sup>7</sup>	N. Y.	N. Y. DAC-1	1946	L	or-ob	msh	W	W	—	—	—	—	S	I	S	—	—	—	1.093	760	N. Y.
Pontiac	Mich.	USDA 401-23	1938	L	r-ob	msh	R	W	S	—	R <sup>s</sup>	—	—	—	S	—	—	—	1.083	421,207	13 States

Variety	Cooperating State	Original Number	Year Released	Maturity	Tuber Shape <sup>1</sup>	Depth of Eyes <sup>2</sup>	Skin Color <sup>3</sup>	Flesh Color <sup>1</sup>	Disease Reaction <sup>5</sup>						Brown Rot	Specific Gravity <sup>6</sup>	Certified Seed in United States in 1946	States with Certified Seed
Potomac	Md.	USDA B-247	1943	L	el-r	msh	W	W	—	—	—	—	—	—	—	1.087	268 Md.	
Red Warba	Minn.	Minn. mutant	1939	E	rb	d	R	R	—	—	—	—	—	—	—	1.088	337,983 5 States	
Russet Sebago	Wis.	Sport of Sebago	1944	L	rel	sh	Rus	W	—	—	—	—	—	—	—	....	1,200 Wis.	
Sebago	Maine	USDA 44488	1938	L	el-rel	sh	W	W	HR	MR	MR	MR	MR	MR	MR	1.003	1,619,098 15 States	
Seneca	N. Y.	USDA 627-235	1946	L	r-ob	msh	Rus	W	—	—	—	—	—	—	—	1.002	.....	
Sequoia <sup>9</sup>	N. C.	N. C. 130.5-24	1939	L	el-ob	sh	W	W	—	—	—	—	—	—	—	1.090	97,140 11 States	
Teton <sup>7</sup>	Wyom. &																	
Virgil <sup>7</sup>	Maine	USDA 47102	1946	L	r-ob	sh	W	W	—	—	—	—	—	—	—	1.088	8,245 Pa., Wyo.	
Warba	N. Y.	N. Y. CYJ-1	1946	L	ov	d	W	W	I	—	—	—	—	—	—	1.082	.....	
	Minn.	Minn. 51-16	1933	E	rb	d	WP	W	—	—	—	—	—	—	—	1.086	40,441 5 States	

<sup>1</sup> Shape of Tuber:	<sup>6</sup> Relative Densities	Starch Equivalent
br=broadly roundish	1.060	9.5
el=elliptical	1.065	10.7
ob=oblong	1.070	11.7
ov=oval	1.075	12.9
r=round or roundish	1.080	13.9
rb=round blocky	1.085	14.9
rel=round elliptical	1.090	16.1
	1.095	17.2
	1.100	18.2
	1.105	19.3

<sup>2</sup> Depth of Eyes:	<sup>7</sup> Disease Reactions:
d=deep	FI=field immune
m=medium	HR=highly resistant
msh=medium shallow	I=immune from common race
sh=shallow	MR=moderately resistant
	S=susceptible
	VS=very susceptible

<sup>3</sup>Color of Skin As Considered in the Trade:

R=red  
 Rus=russet  
 W=white  
 WP=white with pink eyes

<sup>4</sup>Color of Flesh:

W=white  
 Y=yellow

<sup>5</sup>Disease Reactions:

FI=field immune  
 HR=highly resistant  
 I=immune from common race  
 MR=moderately resistant  
 S=susceptible  
 VS=very susceptible

<sup>7</sup>Data taken from the *Potato World*, Jan. 1946.  
<sup>8</sup>In preliminary tests  
<sup>9</sup>Resistant to hopperburn and flea beetle injury.

1932 are listed in table 1. In this table are given the state or states that distributed the variety, the original number of the seedling, the year it was released, and data on a number of characters. The data for disease reaction are not complete, because the newer varieties were tested for the principal character for which they were released but not for all other characters.

If one is to judge by the amounts of seed certified in 1946, Katahdin with 8,303,035 bushels of certified seed, Chippewa with 1,799,378 bushels and Sebago with 1,619,008 bushels are the most widely grown of the new varieties. In fact, there was more certified seed of Katahdin in 1946 than of any other late variety. It was surpassed only by the Irish Cobbler. During the same season the Maritime Provinces of Canada produced 2,424,779 bushels of certified seed of Katahdin; 1,601,557 bushels of Sebago; and 6,720 bushels of Chippewa. In the United States these three varieties were followed by Pontiac with 421,207 bushels of certified seed; Calrose with 340,000 bushels; and Red Warba with 337,983 bushels.

#### NORTHEASTERN STATES

The report for New England, as sent in by W. C. Libby, Head of the Department of Agronomy, University of Maine, shows that there are six new varieties grown in New England at present: Katahdin, Chippewa, Sebago, Houma, Sequoia, and Mohawk. The production data for these varieties are given in table 2. According to the estimates, 51 per cent of the total production in New England consisted of these six varieties.

TABLE 2.—*The production of new potato varieties in New England in 1945.*

Name of Variety	Production	Estimated Production	Production
	Acres	Bushels	Per cent
Katahdin	74,375	19,412,850	30.2
Chippewa	21,980	5,277,800	8.2
Sebago	22,450	5,991,320	9.3
Houma	6,770	1,560,000	2.4
Sequoia	1,800	397,000	.6
Mohawk	less than 500	less than 150,000	less than .3
(Maine only)			
Total	127,875	32,788,970	51.0

The Katahdin has replaced, to some extent, the Green Mountain and the Irish Cobbler because of its higher market quality due to its

freedom from net necrosis and because it is easy to grow and keep reasonably free from diseases.

The Chippewa is grown instead of the Green Mountain in some sections because of its earliness and its freedom from net necrosis and stem-end browning. The Sebago is also competing with Green Mountain because of its blight resistance and freedom from internal discoloration that is so often found in Green Mountain. Houma is preferred by some growers because of its resistance to internal discoloration. Sequoia is on the increase because of high yields and freedom from net necrosis. The Mohawk is just going into production in Maine, but those who have grown it like not only its high market and cooking quality but also its resistance to mild mosaic. When this variety was first under test at Aroostook Farm, no net necrosis was found in it; later it developed this disease, but perhaps not to the degree that is often found in Green Mountain. If it were not for the net necrosis found in Mohawk it would replace the remaining Green Mountains almost entirely.

#### MIDDLE ATLANTIC STATES

A survey of the Middle Atlantic States which was made by J. C. Campbell of the New Jersey Agricultural Experiment Station, New Brunswick, New Jersey, shows that nine new varieties are grown in that section: Chippewa, Earlane No. 2, Houma, Katahdin, Mohawk, Pontiac, Sebago, Sequoia, and Warba. About 44 per cent of the potatoes grown in New Jersey, nearly 25 per cent of those in the state of New York, and 75 per cent of those in Northampton and Lehigh counties of Pennsylvania are Katahdins. A few Katahdins are also grown in Virginia and Maryland.

The Chippewa is second among the new varieties in this section. Ten to fifteen per cent of the potatoes grown in New Jersey, 7 per cent of those in New York State, and a few of those in Pennsylvania, Maryland, and Virginia are Chippewas.

The Sebago is grown to some extent in all the states in this section but especially in New York and Pennsylvania. About 12 per cent of the certified seed grown in New York State, 10 per cent of all potatoes in western and central New York, 13 per cent of those in Erie County and approximately 50 per cent of those in Courtland County are Sebagoes. About 15 per cent of the potatoes grown in Pennsylvania are Sebagoes. The production areas of this variety are scattered throughout the state with the most concentrated area in Lehigh county. The Sebago does not compete with Katahdin and Chippewa in New Jersey and as a result only about 2 per cent of the production in that state is of this

variety. The Sebago has been found suitable for a fall crop in the lower piedmont and the tidewater sections of southeastern Virginia and last year about 250,000 bushels of this variety were grown there. A few thousand bushels are also grown in Delaware and Maryland.

Houma is found, for the most part, in central New York where approximately 1,000,000 bushels are grown, mostly in Erie and Courtland counties. About 1 per cent. of the certified seed in New York State is Houma.

Sequoia has made a slow but steady increase. About 3,100 acres of this variety were reported in this section, divided as follows: Virginia, 1,200 acres; Maryland, 750; Delaware, 150; western and central New York, 500; and New Jersey, 500; with a total production varying between 6 and 8 million bushels.

#### EAST CENTRAL STATES

##### KENTUCKY

In Jefferson County, Kentucky, Irish Cobbler has been the main-crop variety for years. As new varieties were introduced they were compared with Irish Cobbler, and if they did not compare favorably with this variety during a 3-year period they were discarded; so, in turn, came White Gold, Golden, Warba, Houma. All were tried and dropped. Then came Katahdin, which was kept, but only as a late crop since it invariably outyielded second-crop Cobblers. Chippewa is not popular with consumers because of its poor cooking quality; a small acreage of this variety is grown for chip manufacture. Sebago is definitely not suited for a first-crop potato and it may be too late for a second-crop variety. Sequoia is here to stay; it is expected to displace Irish Cobbler because it has consistently outyielded this variety and the tubers are more shapely. Warba is on the way out. Its chief weaknesses are that it sets too heavy; produces too many culls; and the market does not like the pink eye.

##### INDIANA

Katahdin is the leading medium-late variety, replacing Rural and Irish Cobbler and accounting for 45 per cent of total production. This is a high-yielding variety but it is susceptible to leafhopper and flea beetle injury. Its tubers are well shaped. The keeping quality is good and there is a good market demand.

Chippewa, an early-maturing high-yielding variety, accounts for 32 per cent of the total production, replacing Irish Cobbler. It produces smooth, shallow-eyed tubers having good market quality, and the mar-



ket demand is good. Its chief weaknesses are a thick skin, poor keeping quality, and susceptibility to scab, leafroll, leafhoppers, flea beetles, and late blight both in the vines and the tubers.

Sebago makes up 4 per cent of the total production, replacing Rurals. It is a late high-yielding variety. Its tubers have good market appearance and the market demand is good. Both the cooking quality and keeping quality are good. It is resistant to scab and to late blight in the tubers and in the vines, and is susceptible to flea beetles and to leafhoppers.

Pontiac is a late high-yielding red variety with large, rough tubers, showing poor market quality and poor demand. Very few are grown in Indiana.

Sequoia is a very high-yielding late variety, with cooking quality poor to medium, and tubers large and coarse. It is susceptible to scab and to late blight rot in the tubers, and resistant to the potato flea beetle and the leafhopper.

Red Warba is an early-maturing variety that is susceptible to scab and leafhoppers. Very few are grown because of the small rough deep-eyed tubers.

#### WEST VIRGINIA

Sebago, Katahdin, and Chippewa account for 20, 10, and 5 per cent, respectively, of the total production of potatoes in the state. Sebago has replaced the Rural. Its tubers have good market appearance and are resistant to soil rots and to late blight. Katahdin has replaced some of the Rurals. It is resistant to virus diseases and develops good-looking tubers. Chippewa has replaced the Irish Cobbler because of its smoother tuber.

Menominee is just being introduced. It yields well, stores well, and shows promise. Mohawk was discarded because the tubers were of an undesirable type, did not store well, and were susceptible to ring rot.

Houma shows some resistance to heat. It is grown very little. Erie is not grown. It was discarded because it lacked outstanding characteristics as compared with other new varieties. Pontiac is not grown, but in tests it appeared to be well adapted to intermediate and higher altitudes. It is a high yielder and vigorous, but very susceptible to scab. Its color is not desirable in West Virginia.

Potomac is well adapted and is promising for home and farm gardens where little attention is paid to pest control. It is less susceptible to soil rots than Sequoia.



## ILLINOIS

Pontiac is a high-yielding red variety of medium late maturity. It is resistant to dry hot weather. Very few are grown in the state.

Sequoia is a high-yielding, late variety. Its tubers are large with good market demand and good keeping quality. The cooking quality is medium. The incidence of hollow heart is high. It is resistant to hopperburn. Not many are grown in the state. Katahdin accounts for 8 per cent of the total production, replacing the Rural. Chippewa represents about 1.2 per cent of the total production and Sebago 1.4.

## NEBRASKA

Kasota accounts for 5 per cent of the total production, replacing Cobbler and Katahdin. It is a high-yielding medium late variety. Its tubers have good market, cooking, and keeping qualities. It is susceptible to leafroll, spindle tuber, blackleg, flea beetles, aphids, and psyllids. This variety is resistant to *Fusarium* wilt and stem-end browning.

## OHIO

Katahdin is the leading late variety grown in Ohio. It is widely adapted, largely replacing Russet Rural. It accounts for 40 per cent of the total production. It is well adapted to the heavy limestone soils of western Ohio. It holds its shape in drought seasons, is affected less with scab than is Irish Cobbler; and because of its white skin is preferred to Russet Rural on the market. Its big weakness is a light set of tubers and the tendency of the resulting large tubers to protrude from the soil. Moderate hilling is necessary to prevent sunburning. It is susceptible to flea beetle injury and hopperburn.

Sebago is grown on 3 per cent of the acreage, replacing Russet Rural. Its weaknesses are: sprouts early in storage, susceptible to the leafhopper, has considerable purple top disease.

Chippewa is grown in a small way, mostly on muck soil. Its weaknesses are: poor stands, considerable leafroll, and tuber wounds often fail to heal which results in considerable rotting in storage.

Warba is a high-yielding variety when grown under favorable conditions. It sets heavy, with too many small tubers as a result. Pawnee, Mesaba, and Earlane give low yields in comparison with those for Cobbler.

Houma does not stand the heat well and the tubers often are off-shape.

Sequoia is a late high-yielding variety producing rather coarse tubers with a strong flavor. If spacing between hills in the row is re-

duced to about 8 inches the tubers will be smaller and smoother. Sequoia is resistant to hopperburn.

Potomac is similar to Sequoia in most respects. It too shows considerable resistance to hopperburn.

Pontiac is highly susceptible to hopperburn. It yields well, when carefully sprayed, but is late-maturing. The tubers are large and the red color tends to fade out.

Mohawk is a late variety and the tubers are usually off-shape. It is not adapted to Ohio.

Erie produces a good yield of round, nice-looking tubers. It tends to set too many tubers and there have been several reports of internal browning.

Menominee is a late high-yielding variety, resistant to scab and to hopperburn. It is not likely to find a place in commercial production in Ohio because of its lateness; and, more important, the tubers are deep-eyed and very coarse.

#### SOUTHERN STATES

In some areas of the southern states during the past 5 to 8 years many of the newer varieties of Irish potatoes have displaced older ones, and in other areas they are increasing rapidly in popularity. In some locations late-maturing varieties that are resistant to late blight are being grown instead of early-maturing varieties.

For years southern Alabama has grown early-maturing Triumph, but during the past two years has turned to Sebago, and in 1946 the indications were that about 40 per cent of the total potato acreage would be planted to this variety.

The Homestead area (Dade County) of Florida has been planted for years to Triumph. In 1941 a small acreage of Sebago was planted because of its resistance to late blight. Two years later, because of its red color, the Pontiac variety made up about 5 per cent of the total acreage, and this variety has increased in popularity until in 1945 approximately 55 per cent of the 6,000 acres of potatoes was in Pontiac.

In the Hastings, Florida, area the growers abandoned the growing of the Spaulding Rose variety, and by 1941 they were planting about 95 per cent of the acreage to Katahdin, Earleine, Sebago, and Pontiac. By 1943 the growers almost unanimously preferred Katahdin or Sebago and planted about 95 per cent of the acreage to these varieties, with Sebago occupying first place, on about 60 per cent of the potato land. In 1944 about 65 per cent of the total potato acreage was planted to Sebago; about 28 per cent to Katahdin; about 2 per cent to Pontiac; and a small amount to Sequoia. The acreage in Sebago continued to in-

crease, and in 1946 about 80 per cent of the potato crop in this area was Sebago. Katahdin, on the other hand, dropped from about 28 per cent to approximately 15 per cent. Pontiac, however, showed some increase, from 2 to approximately 4 per cent.

In central and northern Louisiana the Katahdin variety is being grown to a considerable extent. It is very satisfactory for chips according to manufacturers in the state. Because of its good keeping quality it can be held in sweet potato storage houses during the summer until August or September and then bring a premium price on the market.

In eastern North Carolina the Red Warba variety yields well, but has not displaced to any marked degree the Irish Cobbler. The Sequoia variety has become well established in the more mountainous area of the western part of the state.

The acreage of Irish Cobbler in South Carolina was reduced from about 65 per cent of the total crop in 1943 to approximately 35 per cent in 1944, having been replaced by the new varieties Katahdin and Pontiac. About 5 per cent of the potato acreage in 1944 was Sebago. These varieties are continuing to grow in popularity.

In Tennessee the Sequoia variety has steadily increased in production on the Cumberland Plateau. Pontiac also yields well in this area. Much of the acreage in 1945, however, was planted to Sequoia.

#### NORTH CENTRAL STATES

The data from F. A. Krantz included a report from H. C. Moore of the Michigan State College on all the varieties grown commercially in Michigan; a report of two new varieties in the peat beds of northern Iowa; a list of the varieties with their advantages and disadvantages that are grown commercially in North Dakota, compiled by Harold Mattson of the North Dakota Agricultural College; a similar list for Wisconsin by H. M. Darling and G. H. Rieman of the University of Wisconsin; and a list for Minnesota by F. A. Krantz.

#### MICHIGAN

The Russet Rural is the leading variety in Michigan, accounting for nearly 65 per cent of the crop. It is widely distributed throughout the state except in two or three of the Lake Superior counties. It has some degree of resistance to drought and scab. The tubers have fair market and cooking quality when properly grown. The chief defects of this variety are its susceptibility to hollow heart, off-type tubers under drought conditions, and darkness of skin when not mature. For these reasons it is being replaced in some localities, particularly in the Grand Rapids area, by the Chippewa.

The Chippewa constitutes about 10 per cent of the potato crop. It is grown chiefly in the central Lower Peninsula and in scattered counties throughout the lower area. In recent years it has also gained some popularity in the counties of the Upper Peninsula. It seldom grows hollow, has a bright skin, is preferred on most markets to Russet Rural, and can be grown either as a medium early or medium late potato. Its drawbacks are its susceptibility to scab and its tendency to bruise. It requires very careful handling in storage and seed treating. It is particularly sensitive to low temperatures and sometimes develops a mahogany red color of flesh.

The Kathadin variety has not been very popular among most of the growers but only a few are much interested in it. In some ways the Kathadin is superior to the Chippewa. The main objections to the Kathadin are its tendency to set shallow, resulting in sunburned tubers, its susceptibility to hollow heart, and its light set.

The Pontiac has gained in popularity very slowly. Growers like it because it sprouts early in the season, comes up quickly, and gives a good uniform stand of plants. It grows fast and yields very well. A good demand for it for seed purposes seems to exist in Florida and other southern states. In Michigan it seldom grows hollow. It is a good keeper and does not rot easily in wet soil or even when affected with late blight. It is very susceptible to scab and to air checking. Last year in the northeastern area of the Lower Peninsula Pontiacs suffered severe injury from air checking.

The Green Mountain has been grown in Michigan particularly in four or five of the counties on Lake Superior, for a long time. Its cooking quality is generally good. The yields are high when the variety is grown on good soil under favorable climatic conditions. It is quite susceptible to virus diseases, particularly mosaic.

The production of the Sebago variety has been limited to very few acres. So far it looks quite promising and seems to survive dry weather periods very well and holds its type. It is highly resistant to the deep scab and moderately resistant to late blight; but it is more susceptible than most of our other varieties to black leg, and was severely affected this past season. Its market and cooking qualities are very good. It should do very well in Michigan.

The Erie is a new variety that was developed by the Ohio Agricultural Experiment Station. For the past two or three seasons it has been grown for the Ohio seed trade by 8 or 10 seed growers in the Gaylord-Elmira areas of Michigan. It yields quite well on the light soils and seems to withstand drought. Some growers claim that it does

not scab as much as Chippewa and other white-skinned varieties. Apparently a number of the Ohio growers prefer this variety to others. At least, they are insistent that Michigan growers produce seed for them.

The Menominee is a variety that was developed about 3 years ago by the Michigan Agricultural Experiment Station in cooperation with the United States Department of Agriculture. It is very late and tends to set light. The skin is often flaky with a slightly rusty appearance. It produces large tubers that generally are quite deep-eyed, especially at the seed end. It has developed some hollow heart in a few locations in Michigan. It compares favorably in yield with Russet Rural and other late varieties. It has considerable scab resistance—more than Sebago, and it has shown more late blight resistance than Sebago. Menominee is recommended particularly for growers who cannot produce ordinary varieties because of badly scab-infested soils. Several hundred acres of this variety are in production in Michigan. Its popularity no doubt will wane quickly when an earlier variety can be found that has the same degree of scab resistance.

The White Rural has been practically replaced in Michigan by the Russet Rural, but a limited number of growers are still producing it. What has been said concerning the Russet Rural will apply to the White Rural except that it might be preferred on some markets because of its whiter skin. It is not quite so resistant to scab as Russet Rural, or perhaps the scab is more easily discernible on the White Rural.

The Irish Cobbler is grown to some extent on muck and sandy loam soil, especially in the market areas of southern Michigan. It has recently been largely replaced on muck soil by the Chippewa. The Chippewa will outyield the Cobbler by 40 bushels or more to the acre. It seems to produce potatoes as large as Cobblers in about the same length of time, although it is a later variety than the Cobbler. Nearly every one of the few thousand bushels of certified seed of Irish Cobbler are produced in the Bay City area in Midland County. Bay County produces several thousand acres of Irish Cobbler for table stock. This is probably the most concentrated area of Cobbler production in Michigan.

The Russet Burbank is grown in Michigan on a very limited acreage. The main difficulty with Russet Burbank is that the variety requires a soil of high fertility, and the weather conditions in Michigan are not suitable so it often produces potatoes of small size. However, a few growers produce the Russet Burbank successfully, but the variety is of no commercial importance in Michigan.

## NORTHERN IOWA

C. L. Fitch reported that about 40 acres of Sebago were grown on the peat beds of northern Iowa in 1945. The estimated production was 8,000 sacks. The variety is on trial in the state because of its scab resistance. It may replace the Irish Cobbler on the worst-scabbing land. The Menominee is also under trial for the same conditions.

## NORTH DAKOTA

The varieties Triumph, Irish Cobbler, and Early Ohio account for 90 per cent of the potatoes grown in North Dakota—45, 35, and 10 per cent, respectively. Only 9 per cent of the crop consists of new varieties—Chippewa, 3 per cent; Katahdin, 2; Pontiac, 2; Warba, 1; Red Warba, 0.5; and Sebago, 0.5 per cent. The remaining 1 per cent is White Rose.

## WISCONSIN

Of the total potato acreage in Wisconsin, the varieties grown and the order of their importance are: Russet Rural, 28 per cent; Chippewa, 24; Irish Cobbler, 23; Rural New Yorker, 8; Katahdin, 6; Sebago, 5; Triumph, 2; Pontiac, 1; and Sequoia, 1 per cent. In seed production, Chippewa comes first with 26 per cent; Irish Cobbler, 18; Russet Rural, 14; Triumph, Katahdin, and Sebago, 12 per cent each; and Rural New Yorker and Sequoia, 2 per cent each. The advantages of Chippewa were given as high yield and high table and market quality. Its disadvantages were susceptibility to scab and late blight. The Sebago has fair resistance to late blight and yellow dwarf but is late-maturing and variable in tuber set.

## MINNESOTA

The two leading varieties in Minnesota are Irish Cobbler which represents 68 per cent of the total production and 53 per cent of the seed production, and Triumph with 8 per cent of the total and 23 per cent of the seed. Of the total production, the new varieties in the order of their importance are: Chippewa, 10 per cent of the total and 3 of the seed; Red Warba, 1 per cent of the total, about 6 of the seed; Pontiac, 1 per cent of total, 4 of seed; Warba, 1 per cent of total and nearly 2 of seed; Sequoia, 1 per cent of total but less than 1 per cent of the seed. Other new varieties grown, each of which represents less than 1 per cent of the total production, are: Mesaba, White Gold, Kasota, Pawnee, Katahdin, and Sebago.



## MOUNTAIN STATES

Five new varieties are grown commercially in Wyoming, but not to a very large extent. Table 3 gives these varieties and the production of each in 1945.

TABLE 3.—*Potato varieties grown in Wyoming and the estimated production of each in 1945.*

Variety	Estimated Acreage	Estimated Production
	Acres	Bushels
Katahdin	50	10,000
Pontiac	7	2,500
Teton	22	5,000
Red Warba	125	25,000
Kasota	15	5,370

Because of its higher yielding ability and its resistance to ring rot, the Teton will probably replace the Irish Cobbler and the Katahdin in Wyoming.

In Utah the new varieties Katahdin, Chippewa, Pawnee, and Pontiac are being tried out.

The Kathadin and Chippewa are replacing the Irish Cobbler not because of similar maturity but only as other varieties to grow, since it is too difficult to grow clean Cobbler seed. The Pawnee is just being tried out. The Pontiac may replace Bliss Triumph, especially on dry lands, then, too, it is heat- and drought-resistant.

#### THE DIFFERENTIAL RESPONSE OF POTATO VARIETIES TO SPRAYING WITH DDT PLUS A FIXED COPPER

J. W. WILSON AND J. P. SLEESMAN

*Ohio Agricultural Experiment Station, Wooster, Ohio*

Various investigators have shown that many of the commonly grown potatoes differ considerably in their susceptibility to injury by various insects and diseases (1,2). Slesman and Bushnell (3) found a variation in the response of different varieties to the application of Bordeaux mixture. Potato spraying experiments conducted in Ohio in 1945 (4) indicated that not all varieties responded in the same way to the application of DDT. With this in mind it was decided to compare a number of varieties that varied considerably in their susceptibility to injury by disease and insect attacks.

Ten varieties that cover approximately the maximum range in ma-



TABLE 1.—*The influence of spraying with COC-S + DDT on the yield, defoliation, leafhopper population and flea beetle punctures of 10 potato varieties grown at Wooster in 1946.*

Variety	Yield in Bushels per Acre		Increase Due to Spraying		Per cent of Foliage Dead on Aug. 17		Leafhopper Nymphs per 100 Leaves on July 15		Flea Beetle Holes per 1.5 cm. disc. on July 15	
	Unsprayed	Sprayed	Bushels	Per cent	Unsprayed	Sprayed	Unsprayed	Sprayed	Unsprayed	Sprayed
Warba	126	334	208	164	100	95	38	0	19	0.2
Bliss Triumph	163	406	243	149	100	70	68	0	17	1.5
Irish Cobbler	254	472	218	86	97	80	14	0	16	0.0
Katahdin	215	464	249	116	80	20	9	0	13	0.5
Chippewa	231	456	225	97	97	37	7	0	14	0.2
Pontiac	275	583	306	112	77	22	27	0	11	0.1
Sebago	276	513	237	86	45	15	5	0	8	0.3
Erie	318	590	272	86	70	25	1	0	10	0.3
Russet Rural	231	465	234	101	70	17	1	0	10	0.2
Sequoia	261	540	279	107	30	7	0	0	8	0.0
Averages	235	482	247	105	77	39	17	0	13	0.3

turity period (90 days for Warba and 140 for Sequoia) were selected. These were planted at Wooster (silt loam) and McGuffey (muck) in two separate blocks, each of which contained all 10 varieties, in plots of four replicates each, arranged in a random distribution pattern. One block at each location was sprayed and the other was left unsprayed. This arrangement provided an opportunity to test all varieties in an area where insects would be subjected as little as possible to the influence of DDT (5). The spray mixture consisted of 4 pounds of COC-S (copper oxychloride sulfate) and 1 pound of a 50 per cent formulation of DDT in each 100 gallons of water. Applications were made every 10 days at the rate of 180 gallons per acre.

Early blight, leafhoppers, and flea beetles were present and comparatively severe at Wooster, but late blight was absent. Early and late blights occurred at McGuffey, flea beetles were scarce, and leafhoppers virtually absent. Data on the relative degrees of defoliation due to early blight, numbers of leafhopper nymphs, and flea beetle punctures on the different varieties were obtained at Wooster. These data are given in table 1. No data on insect populations (no leafhoppers present) or defoliation due to early and late blights were obtained at McGuffey but the data relative to yield are given in table 2.

TABLE 2.—*The influence of spraying with COC-S + DDT on the yield of 10 varieties of potatoes grown at McGuffey in 1946. Leafhoppers absent from all plots.*

Varieties	Yield in Bushels per Acre		Increase Due to Spraying	
	Unsprayed	Sprayed	Bushels	Per cent
Warba	387	599	212	55
Bliss Triumph	436	643	207	47
Cobbler	490	610	120	25
Katahdin	436	588	152	35
Chippewa	512	664	152	30
Pontiac	517	740	223	43
Sebago	354	495	141	40
Erie	479	664	185	39
Russet Rural	310	539	229	95
Sequoia	425	545	120	28
Averages	430	610	180	42

Of the varieties used in these comparisons (see table 1) the most resistant to leafhopper injury are Sequoia, Sebago, Russet Rural, and Katahdin. Irish Cobbler, Warba, Chippewa, Pontiac, and Bliss Triumph are more susceptible. Sequoia is somewhat resistant to damage by flea beetles, whereas Pontiac is especially susceptible to injury by this

insect. Sequoia and Sebago possess some resistance to late blight but all of the others are comparatively susceptible to attack by this disease.

In the Wooster experiment (table 1) the three varieties with the highest leafhopper populations (Warba, Bliss Triumph, and Pontiac) showed the greatest percentage of increase in yield from spraying with COC-S plus DDT. The average leafhopper index was 44 nymphs per 10 leaves which was accompanied by a yield increase of 134 per cent, whereas the three varieties (Sequoia, Russet Rural, and Erie) with the lowest average nymph population (less than one on 10 leaves) showed a yield increase of only 97 per cent. Since other yield inhibiting factors did not vary so widely as the population of leafhopper nymphs, it seems likely that the control of this particular insect by DDT was responsible for the large yield increases on Warba, Bliss Triumph, and Pontiac. In other words, varieties most susceptible to leafhopper injury showed the greatest yield increases when this insect was controlled by the use of DDT. This substantiates the conclusions of Slesman and Bushnell (3) who found that Bordeaux mixture brought about the greatest increase in yield on Bliss Triumph, which is highly susceptible to leafhopper injury, and the least increase on the comparatively resistant Sequoia. The greatest actual increase in yield (in terms of bushels per acre) occurred with Pontiac. This is a strong-growing variety which is comparatively susceptible to damage by leafhoppers, flea beetles and early blight. Erie, which showed one of the lowest percentage increases in yield, probably because of the comparatively high yield of the untreated check plots, also responded well to spraying with an increase of 272 bushels per acre. An examination of the averages for all 10 varieties shows that yields were doubled, defoliation halved, flea beetle damage reduced by nearly 80 per cent, and that leafhoppers were eliminated by spraying at 10-day intervals with this COC-S plus DDT combination.

As mentioned previously leafhoppers were very scarce at McGuffey and flea beetles caused only slight damage, even in the untreated variety block. Early blight was severe late in the season and late blight caused some defoliation of untreated plots for a period of a few days during the latter part of the growing period. The data relative to yield are given in table 2. Check (untreated plots) yields were comparatively high and as a result the actual and percentage increases due to spraying were somewhat smaller than at Wooster. With the exception of Russet Rural, which for unexplainable reasons had an extremely low check yield, the same three varieties that showed the best response to spraying at Wooster (Warba, Bliss Triumph, and Pontiac) repeated at McGuffey. The Colbler variety again showed one of the smallest increases caused by spray-

ing, and Pontiac for the second time gave the largest increase in yield of the 10 varieties under comparison. Sequoia assumed a position more in agreement with its high resistance to insect and disease attack than it did at Wooster, since it was comparatively unresponsive to the disease and insect control afforded by the combination of COC-S and DDT. The average yield increase caused by spraying for all 10 varieties was only 42 per cent at McGuffey, compared with 105 per cent at Wooster where insects were more plentiful. This indicates that the control of insects, particularly leafhoppers, may be more effective in increasing yields than the control of diseases, since diseases were more severe at McGuffey, whereas insect injury was greater at Wooster.

As a result of the experimental data obtained in the spraying of potatoes in 1945 (4) three control formulas were selected as being satisfactory for use on that crop in Ohio in 1946. The fungicides were Bordeaux mixture, COC-S, and Zerlate, each to be used with DDT as the insecticide. To check the validity of this choice all three combinations were used on each of three varieties at Wooster and McGuffey. The data obtained are given in table 3.

The disease and insect complexes were similar to those described for the larger variety experiment. Data on defoliation were obtained only for Wooster, where Zerlate gave the best average control of early blight, followed in turn by Bordeaux and COC-S. Zerlate-treated plots gave the highest average yield at Wooster where early blight was chiefly responsible for defoliation, followed in turn by COC-S and Bordeaux. At McGuffey, where late blight was comparatively severe for a short time late in the growth period of the potato plants, Zerlate ranked third and COC-S took over top ranking. In the general average, however, Zerlate still gave slightly better results in yield as well as in the control of early blight. Katahdin again showed a greater response to spraying than did Irish Cobbler, or Erie, as it did in the variety trials, especially those at Wooster.

#### SUMMARY

Potato varieties vary considerably in their susceptibility to injury from the attack of insects and diseases. Since this is true, one may assume that the different varieties will respond in varying degrees to the application of spray materials that will control these pests. Ten varieties of potatoes, all of which are grown to some extent in Ohio, and which vary widely in the time necessary for them to mature, were sprayed with COC-S plus DDT (4-1-100) in a study of varietal response to this control formula.

TABLE 3.—*Relative performance of three control formulas recommended for use in spraying potatoes in 1946. DDT used with each fungicide at 1-100.*

Variety	Irish Cobbler		Katahdin		Erie		Average	Average Per cent of Foliage Dead on Aug. 17 at Wooster
	*W	M	W	M	W	M		
Bordeaux 8-8-100	365	604	395	566	528	659	520	26
COC-S 4-100	356	610	582	588	457	664	543	29
Zerlate 2-100	414	588	561	583	539	626	554	21
No treatment	220	441	215	436	318	479	352	82
Variety averages when sprayed	378	601	513	579	508	650		
Average both locations		400		546		579		

\*W=Wooster

M=McGuffey

The three varieties which responded most to spraying were Warba, Bliss Triumph, and Pontiac. Bliss Triumph and Pontiac are possibly more susceptible to leafhopper damage than any other of the 10 varieties used. Warba was the earliest of the group and this may have accounted for its large yield increase when sprayed. Irish Cobbler, Chippewa, and Erie, as a group, responded no more than Sequoia, Sebago, Russet Rural, and Katahdin, although they are usually ranked as being more susceptible to hopper damage:

The data as a whole suggest that the response to spraying in these experiments was more closely correlated with varietal susceptibility to disease than to insects, since damage from the former was the greater.

Averages of the data from all 10 varieties at Wooster show that yields were doubled, defoliation was halved, and leafhopper and flea beetle damage were reduced to almost nothing by spraying with COC-S and DDT.

In a third experiment conducted at both Wooster and McGuffey in which three standard spray recommendations were compared one with another on Irish Cobbler, Katahdin, and Erie, Katahdin showed the greatest increase as a result of spraying. Zerlate gave the best control of early blight, but was less effective than COC-S or Bordeaux against late blight. COC-S and Bordeaux were approximately equal in disease control efficiency at both locations.

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#### SECTIONAL NOTES

##### INDIANA

The weather this season is reducing the yield of our potato crop considerably. I would not be surprised if we experienced a loss of 20 per cent of the estimate, which would bring us down below four million bushels. Judging from what I have seen of the crop so far the quality is also below normal. The Cobblers are not only slightly rough with some wireworm damage, but also show a trace of late blight on the



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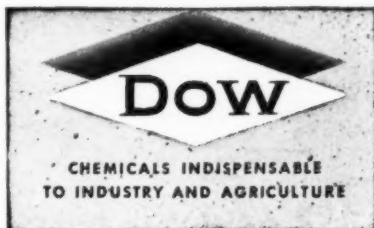
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tubers. All of these factors, coupled with the hot weather, have not been conducive to good storage conditions and the usual local supply for the various towns is almost nothing.

Late blight has disappeared almost entirely. Our growers also have good control of the insects on their potatoes, so that favorable growing conditions from now on will determine the yield of our late crop. (Aug. 2).—W. B. WARD.

#### MISSOURI

The harvesting of Missouri's mid-season commercial potato crop is just about completed. An estimated 1600 acres have been harvested, and you will recall that more than 1200 acres were destroyed by the June floods.

The yields from different fields were quite variable owing to unfavorable weather during the season, ranging from extremely low up to 500 bushels per acre. The average was around 200 bushels per acre.

In most fields, the quality was only fair. The potatoes fell below the U. S. No. 1 grade because of small size, growth cracks, and some sand rust.

The prices received by growers were not too good. Few of them sold for \$3.50 per hundred and others barely paid for their freight. The majority were not sold on Government grade, and brought from \$1.75 to \$2.25 per hundred. Red Warba potatoes averaged 40 to 60 cents a sack higher than did the Cobblers.

More than 500 cars rolled by rail, most of which went to Chicago. Trucks moved the equivalent of a few more carloads. The Government price support program purchased 25 cars of potatoes in this area during July.

Local labor was plentiful during the harvest season. Many growers have potato harvesters which worked quite satisfactorily in the sandy soils, but in the heavier dry soils the clods were quite troublesome. It was practically impossible to keep some clods from getting into the sacks. Some growers modified their potato harvesters to give a longer platform so that more workers could help sort the potatoes. Other growers used the older type diggers and picked the potatoes from the ground.

A number of fertilizer demonstrations were conducted this season. The results of these tests will be summarized and presented to the growers at their annual meeting. (Aug. 13).—ALLAN PURDY.

#### NEBRASKA

Nebraska potato growers in the western main crop areas faced one of their most difficult planting seasons on record. Following quite an

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open and dry winter, the months of February and March were also dry and windy. Growers were talking about a re-occurrence of the drought years of the '30's until the fore part of May. Suddenly the situation changed, and the other extreme became prevalent. Now just what happened throughout the corn belt areas, and in Nebraska during the floods in May and June is an old story. This situation extended to the western part of the state as well.

Western Nebraska had a snow storm on the 28th of May that amounted to 14 inches in the vicinity of Alliance, Nebraska. On the 11th of June another snow storm covered most of the western area, and was accompanied by severe freezing that damaged crops throughout the area. Intermittent storms occurred throughout this period, and on the 21st and 22nd of June a severe storm began in the Rocky Mountain areas and extended across Wyoming and Nebraska, bringing rains ranging from 3 to 6 inches. This not only disrupted farming, but also the railroad service and practically everything imaginable. Some small line railroads have not, as yet, restored service and it required from two to three weeks to repair the damage on the main lines. The weather bureau reported that the month of June showed the highest precipitation on record of any month since records have been taken,—approximately 65 years.

Planting extended from early June until the middle of July,—far past the common accepted dead line. Many fields were replanted either because of being drowned out or being hailed out. There was an unprecedented demand for seed potatoes until the 10th of July, to replace other crops lost by the extremely serious hail storms.

The inspection of certified potatoes has been under way for nearly two weeks, with the plants ranging in size from 4 to 6 inches in height to 2 feet. Confusion reigns everywhere. It is very difficult to ascertain the total amount of damage, or the probable crop prospects, because of the great variety of planting dates and field conditions. At this time we are experiencing a heat wave, which has extended for ten days, with temperatures of 100° and above every day. There has been no rain for nearly three weeks and there is a critical need for it.

Although the growers voted favorably for a marketing agreement, there seems little need for it at this time.

The central and early crop marketing have been in operation for ten days, with good yields and good quality reported. The price, at present, to the grower is \$2.25. (Aug. 6).—MARX KOEHNKE.

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## NEW YORK

Growers in up-state New York are much concerned about crop prospects. The acreage is down, stand is poor, and blight made its appearance at an earlier date than has ever been recorded.

There was no trouble in getting most growers to comply with the government allotment but the allotment is far from being filled. A P. & M. A. official reported that in one of our potato counties the checked acreage was a little above 70 per cent of the allotted acreage on the average. Generally speaking growers are satisfied with the support price announced by the government but they are not satisfied with the method of support. Not much concern is expressed however, because local opinion would indicate that the shortage in the crop would keep prices above support levels.

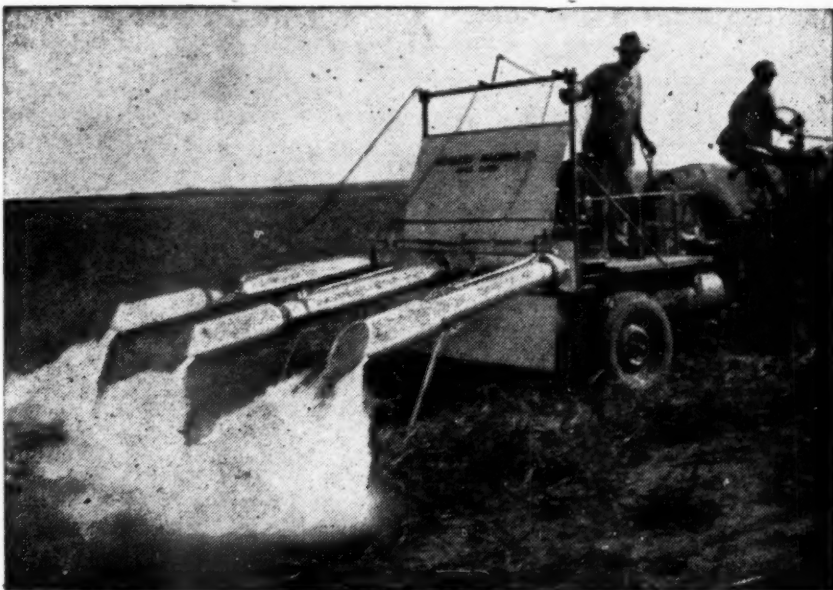
The stands vary from total failure to nearly perfect stands depending on circumstances in the particular area. In several of our muck sections entire fields were drowned out and in many upland areas the low parts of the field were also drowned out causing a very spotted appearance. Apparently the season was conducive to seed piece rot and in many cases the stand was very poor. Even after the potatoes had emerged and were growing late spring rains accumulated in low pockets and caused considerable damage.

Seldom does blight occur in up-state New York before August but this year a general infestation was noted early in July. The fields, in many cases, were so wet that growers were unable to spray and there has been more airplane and helicopter dusting this year than any one anticipated. One grower indicates that parts of his field are so bad that the vines are dying and he expects a big reduction in his crop even if he can control blight in the better drained parts of his field. Much attention is being given to the blight immune varieties introduced in recent years by Dr. Reddick. This year certainly will give them a test.

There is also much interest in the Teton variety which started off with a vigorous growth and so far has met all expectations except that it shows a little spindle tuber. This Spindle Tuber is hard to detect because of the varietal characteristics of the plant. The demand for seed of this variety far exceeds the possible available supply. (Aug. 4).—H. J. EVANS.

## NORTH DAKOTA

North Dakota potatoes continue to make good growth with soil moisture above normal and the weather seasonally warm. Despite a number of heavy rains which have flooded the low spots in one or two



## MODEL PB-3 WEED BURNER

The Model PB-3 is here shown in use in potato fields. Used to destroy green immature vines it permits harvesting operations without waiting for normal maturing of vines or their elimination by killing frost.

Vegetation which has accumulated after cultivating is no longer possible, is completely eradicated and permits efficient digger operation. Clean fields result in fewer potatoes being lost as they can easily be seen by pickers.

The use of the Model PB-3 is not restricted to the burning of potato vines as it can be used wherever weed eradication is necessary.

At a speed of 5 m.p.h. the Model PB-3 consumes 18 gallons of fuel oil per acre and burns 4 rows or a swath 15 feet wide on each trip.

References by potato growers using the Model PB-3 furnished on request. They will give you their actual experience with the use of this machine.

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districts the weather has not been favorable for late blight and there have been no reports of this disease.

The North Dakota potato growers also grow grain, some to the extent of several thousand acres, and they are now busy directing the harvesting of another bumper crop. At present prices the 1947 wheat crop is valued well above the return from the crop of the entire 10-year period 1930-1939. Although the grain harvesting season is an extremely busy one, it would nevertheless be difficult to find a potato field that lacks attention. All fields have been uniformly well cultivated and dusted. As the vines meet between the rows a number of producers are shifting from tractor dusting to dusting by plane.

Growers and officials from seed buying areas are frequent visitors throughout the growing season. Thirty-five farmers and businessmen from the vicinity of Steuben County, New York, inspected fields and compared notes with growers in the Grand Forks-Park River-Hatton area on the 6th of August. Wm. Stempfle, Farm Bureau Agent of Steuben County, and Wm. C. Case, Executive Secretary of the Red River Valley Potato Growers' Association guided the group which ranged from 75 to 125,—at the various stops. Among the items of special interest were different varieties, field and storage practices, warehouses and processing plants, and the feeding of potatoes to livestock. (Aug. 9).

—HAROLD MATTSO.

#### OHIO

Growers along the Ohio River started to dig Cobblers during the week of the 4th of July. Most of the acreage in this section of the state is small, but digging is now getting under way in the larger sections in Coshocton and New Carlisle. There will be a fair movement of potatoes to the market this week. Packing in pecks also began this week with the price to growers being 55 cents delivered.

Cobblers are yielding a fair crop, but the total crop will be approximately one-third of last year.

In most sections of the state it has been cold and wet, therefore the late crop was not planted until the latter part of June, some as late as the first week of July. A late season will be necessary if these potatoes are to produce a fair yield. (Aug. 4).—E. B. TUSSING.

#### VIRGINIA

Harvesting on the Eastern Shore was completed early in August. Excellent yields were obtained in the northern part of Accomac County where the precipitation had been better than on the rest of the Shore. Some late blight occurred in that area during the latter part of July, but



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it did not affect the yield, or cause much tuber infection. (Aug. 12).—  
HAROLD T. COOK.

#### WASHINGTON

In the Yakima Valley and in the area around Moses Lake the red potatoes are practically harvested. Harvesting of White Rose potatoes is under way and will continue for another week or 10 days. The early crop of Netted Gems is starting to come in and harvesting of this variety will be rather heavy about the middle of August.

In some fields of White Rose, early blight infections have appeared but losses due to this disease are negligible. Most of the fields have been relatively free from mosaic and leaf roll but an occasional lot of seed has been poor and as much as 60 per cent of the plants have shown virous diseases. A sprinkling of ring rot has appeared in many of the commercial fields and its presence is difficult to explain. As nearly as can be determined at present it is not in the certified seed but has gotten into the fields through careless handling of the seed after it was cut and while being planted. Contaminated sacks, bins and planters appear to be largely responsible for the presence of the disease in a number of fields. Growers are becoming aware of the danger and their interests indicate that measures will be taken to clean up ring rot before another season approaches. (July 29).—M. R. HARRIS.

#### CANADA

Growing conditions for potatoes have been excellent during the past two weeks, resulting in unusual growth. Despite the wet, backward weather conditions during normal planting season, the crop now looks good, except for several late planted fields. Our present average yield estimate is 80.4 cwt. per acre. Late blight has already been observed. With excessive top growth, coupled with warm, moist conditions, this may be a blight year.

Marketing of the early crop is progressing satisfactorily, with most of the shipments made on a growers' cooperative basis. Enforcement of regulations under the Plant Disease Act in connection with Bacterial Ring Rot, recently resulted in 12 court cases with total fines of \$206.00. Efforts are now being made to keep this disease at the minimum and protect our seed supply. More than \$25,000.00 worth of seed from Ontario was shipped to New York State from one locality during April of this year. The demands for disease-free seed are on the increase and are capable of producing vigorous stock, true to variety, and of good type. (Aug. 6).—R. E. GOODWIN.

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Stop Sprout is a dust containing methyl alpha-naphthaleneacetate. It is easy and convenient to handle. A little goes a long way — one pound treats 10 to 11 bushels and can prevent sprouting for 4 to 5 months at 50 to 55° F. (shorter periods at higher temperatures).

The extra high quality of Stop Sprout treated potatoes brings a premium price that far offsets the added cost for its use. Apply Stop Sprout when potatoes\* are harvested or in early spring when they are moved from cold storage.

\*table stock only.

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Export sales of certified seed potatoes in 1946 showed an increase of 838,837 bushels compared with 1945, which was only 100,000 bushels less than the record sales of 1944. Domestic sales from the 1946 crop show a decrease of 590,020 compared with 1945.

In addition to the above, 70,000 long tons of table stock potatoes were sold to the United Kingdom. A large portion of this order was composed of potatoes eligible for certification, and inspections for bacterial ring rot, as well as for grade, were carried out.

The number of applicants for field inspection in 1947 shows a slight increase above that of 1946, whereas a decrease of 8,163 acres is recorded.

Growth has been very backward in Eastern Canada, where late frosts and cold rains delayed the planting for several weeks. In Nova Scotia, planting was not completed until the 3d of July. In British Columbia, the first field inspections, the earliest on record, were made on the 5th of June. On the same date, late blight was found in a field of table stock in the lower Fraser Valley. In the Prairie Provinces, planting was normal.—W. N. KEENAN, *Chief, Plant Protection Division*.

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#### ANNUAL MEETING, POTATO ASSOCIATION OF AMERICA DECEMBER 28-29-30, CHICAGO, ILLINOIS

The Palmer House has been designated as the headquarters for the Potato Association along with Section O, Agriculture and American Society for Horticultural Science, among others. Rates, Single, \$4.00 to \$9.00; Double, \$7.50 to \$11.50.

The Stevens House is the official headquarters of the American Phytopathological Society. Rates, Single \$4.00 to \$9.00; Double, \$6.40 to \$11.00. Other hotels are the Congress and Sherman.

Conventioners may secure room reservations immediately by writing to the A.A.A.S. Reservation Center, Chicago Convention Bureau, 33 North LaSalle St., Chicago 2. Name three hotels in order of preference and state the exact date of arrival and departure. Those who are willing to share a room will stand a greater chance of being assigned in the hotel of their first choice.

The following procedure should be adopted in making applications for hotel accommodations:

Please reserve the following:

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Hotel.....	Second Choice
Hotel.....	Third Choice

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They are a paying proposition for us." Why not follow this grower's experience and write for details.

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NOTE: You will receive confirmation direct from hotel accepting reservation when made. All reservations must be made 30 days prior to arrival.

President Marx Koehnke has appointed the following to take care of committees and special assignments:

Secretary—Reiner Bonde.

Registration—Harry Reiley.

Chairman Joint Meeting Phytopathology—O. D. Burke.

Honorary Members—Frank Garrett.

Certification Committee—Henry Darling.

Potato Research—E. V. Hardenburg, Ora Smith.

Potato Breeding—Harold Matson.

Culture and Storage—H. O. Werner.

Virus and Bacterial Diseases—R. L. Larsen.

Insect Problems—George M. List.

The tentative program follows:

#### SUNDAY, DECEMBER 28

9:00 a. m., Potato Association—Private Dining Room 9

1:30 p. m., Potato Association—Private Dining Room 9

#### MONDAY, DECEMBER 29

9:00 a. m., Potato Association—Private Dining Room 9

1:30 p. m., Potato Association—Private Dining Room 9

7:30 p. m., Potato Association—Private Dining Room 18

9:00 a. m., Joint session with American Phytopathological Society  
 —So. Ballroom.

1:30 p. m., Joint session with American Society for Horticultural  
 Science—Private Dining Room 17.

The joint session with the American Phytopathological Society will be held at the Stevens Hotel. All others at the Palmer House.



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MARCH 1946

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# HUNGER SIGNS IN CROPS

Growing plants should be observed closely for signs which may denote plant-food starvation. Potatoes, for instance, will show their need for potash with leaves that have an unnatural, dark green color and become crinkled and somewhat thickened. Later on, the tip will become yellowed and scorched. This tipburn then will extend along the leaf margins and inward toward the midrib, usually curling the leaf downward and resulting in premature dying.

Valuable as this method of diagnosis has proven, it has its limitations owing to inter-relationships of nutrients in the plant and to other factors that might cause abnormalities. Recently it has been observed that when an application of a nutrient has not produced the expected results, a hardpan of impermeable layer in the soil may offer an explanation. Restricted root zone, reduction of capillary action, and limited quantities of oxygen lessen a plant's ability to absorb nutrients that might be in the soil and available if the hardpan were eliminated.

In determining fertility requirements, therefore, it may be well to consider not only the surface soil but also what is underneath. The greater the volume of soil in which plants can breathe, eat, and drink, the greater the insurance of a good crop.

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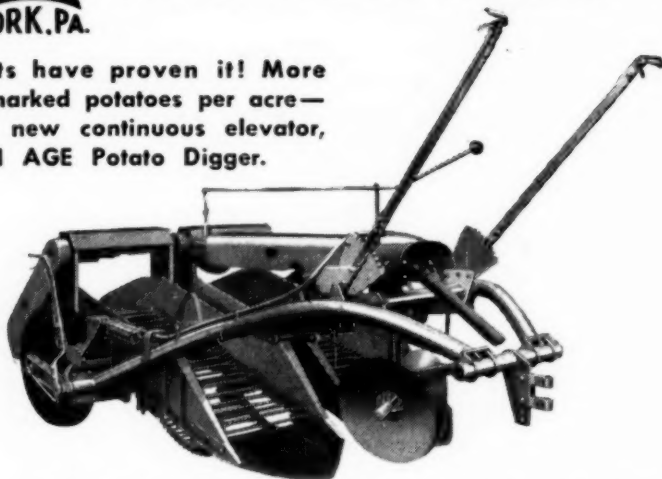


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